

**ABSTRACT**

Increased stability of derivitization agents on the surfaces of packing material used in chromatography is described. In particular, the stability of the organosilanes on silica surfaces used in chromatography is increased, thereby creating a more durable coating of organosilanes. By increasing its stability, the organosilane entity becomes more resistant to de-bonding and the durability of the underlying surface is enhanced against dissolution. Thus, chromatographic separations are able to be performed at higher and lower pH ranges and higher temperatures. The stability can be increased through attachment of polydentate silanes which are either pre-polymerized and then surface bonded or can be bonded first and then cross-polymerized afterward, yielding a polymerized polycarbosilane backbone that is very stable against hydrolytic cleavage conditions.

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